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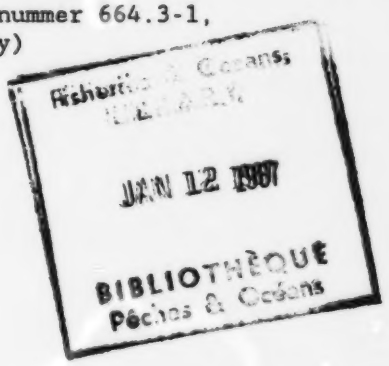

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REPORT: Multiplier Effects in a Municipality Dependent on Fisheries. Total Economy Fleet/Factory.

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SECTION: Economics.

EXTRACT:

A model is developed, which can analyse the multiplier effects of changes in a municipality dependent on fisheries. The model is a so-called disaggregated economic base model. We analyse the employment consequences in a municipality occuring as a result of changes in the structure of the fleet, raw material landed, or use of raw material. More particularly, the employment consequences are studied in several sectors : the fishing industry, sub-suppliers, consumer industries, and the municipal sector.

In order to demonstrate the use of the model, a calculation is carried out in the report for the municipality of Skjervøy in North Troms.

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*) Mo i Rana = a Norwegian township

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CHAPTER 1 - INTRODUCTION.

The purpose of this project is twofold: First, to develop a model structure to analyse the multiplier effects of the fishing industry in municipalities dependent on fisheries, and secondly , to use the model on a chosen municipality.

In several contexts it is necessary to use collective concepts to analyze the fishing industry - an industry which is usually viewed as being an integration of three stages. The first stage is fishing, which from a conditional, renewable resource procures raw material for the second stage, processing. From the processing stage, fish products are delivered to markets through the third stage, sales and distribution.

Between these stages there are clear areas of conflict. We have, for example, information to the effect that high profits in one of the stages cause correspondingly high costs for the subsequent stage. Further, the most profitable composition of the fleet will hardly make the most profitable structure for processing. At the same time, we have seen several examples of vessels which, when viewed in isolation, are unprofitable but can be made profitable if the total economy of the vessel and processing industry is viewed collectively, i.e., when we regard these two stages as a single economic unit. FTFI (Institute of Fishery Technology Research) has analysed these relationships in an earlier project (664.1-6).

The earlier work focused on the economic result of an integration of a factory and the fleet belonging to it. The fleet could either be directly owned by the factory, as

fresh fish trawlers normally are, or attached to the factory through location or informal supplier agreements.

A main approach in the earlier analysis was to assess delivery of fish caught by trawler against different alternative means of having supplies of fish. In the analyses, seasonal variations in the composition of catch, possibilities for intermediate storage (double freezing and live storage), and possibilities of varying the product mix during the year were considered. In the same project, the total profitability of different strategies of fishing and processing also varied in proportion to the employment provided by the alternative.

The result of this earlier work was published in a report (Johnsen 1981) and in a published address (Vassdal, 1984) as well as in some working notes by FTFI.

The work which is presented here, can be viewed as a continuation of the above mentioned project. We are now primarily concerned with the employment created by the fishing industry in municipalities dependent on fisheries.

For a long time, clearly expressed political aims have been associated with the fishing industry, related to employment and settlement in addition to economic demands for profitability. It is also a political wish that the fishing industry should create the best possible employment in sparsely developed coastal areas, in order to safeguard the settlements there. Several circles, particularly the industry's special interest organizations, emphasize the fishing industry's fundamental importance for the remaining

industries and for employment and settlement in the widest sense.

It is often stated that there is an unambiguous connection between activity in the fishing industry on the one hand and the settlements along the coast on the other. This connection is then also used as the foremost argument for support given to the fishery, something that Fishery Minister Listan stressed in a speech in Tromsø, 16.9.83.

> "When the state is willing to grant as high a support to the industry as it now does, it is due, in the main, to the consideration given to the settlements in the most sparsely developed districts."

The thought process behind such a view is that the fisheries are a foundation for the total employment, which in turn is a foundation for settlements along the coast.

Recently, Norway's Fishermen's Association had a big advertising campaign in the country's newspapers,with the caption: "Each fisherman provides 5 jobs on land." At the end of the text it states: "In order to safeguard settlements and employment along the coast, the state makes transfers (of funds) to the fishing industry" (Nordlys 30.11.84).

Norway's Fishermen's Association uses the same figures as Brochmann and Josefsen (1984) who claim that: "It is reasonable to believe that one man-year in fishing is the source of five man-years in all, inland, when all the multiplier effects of the fishery activity are considered". However, no attempt is made to

analyse what proportion of the derived employment falls to the coastal municipalities.

We shall not discuss here the claim that each fisherman provides five jobs on land. Instead, we will show how many jobs each fisherman provides in his home municipality. We have developed a regional economic model to analyse the employment results from fishing, in municipalities dependent on fisheries. This model will be used to fix, numerically, the multiplier effects on other employment in the municipality of some hypothetical changes in the structure of the fisheries. In this work we take the municipality of Skjervøy as a starting point, as it, with its 30 % fishery employment (fishing and processing) is to be found among the typical "municipalities dependent on fisheries" (Bergland and Olsen, 1984).

The numerical values and results which emerge here are thus valid for the municipality of Skjervøy. The model as such has, however, a general format, and analyses of other fishery municipalities with the same model have been initiated to establish how the employment multipliers vary from municipality to municipality. The present report, therefore, consists of two main parts. Part I is an exhaustive description of Skjervøy municipality, with stress on the fishing industry. Chapter 2 deals with population and industry, while chapters 3 and 4 give a comprehensive view into the fishing fleet and the fishing industry respectively in the municipality.

In Part I we have given a more detailed description of the fishing industry in the municipality of Skjervøy than is necessary to produce data for our model. We have done this for

two reasons. First, the industry analysis of Skjervøy was prepared in tandem with the development of models. We therefore gathered and analysed enough data to test several variants of the model with regard to the degree of detail and to avoid a situation in which central sources of data for the models would not be available.

Secondly, to give a description of Skjervøy in this report is of value in itself. The readers can, of course, make their own judgements as to whether the municipality of Skjervøy is "typical" or not, when they assess the results obtained by using the model for this municipality. In Enclosure 3, a simplified version of our model is presented, with a description of the minimum requirements for data needed for such an analysis.

Part I concludes with a description of two scenarios - one pessimistic and one so-called realistic alternative for changes in the structure of the fishing industry in Skjervøy.

Part II is the regional analysis. Chapter 6 reviews the relevant theory and model base, and Chapter 7 then presents the "Fishery Region" model. The model is then studied in general form, but at the same time numerical values from Skjervøy are given. Chapter 8 presents results from the model when it is used to analyse several of the alternative changes in structure in the fishing industry in Skjervøy. The employment consequences within the municipality are central to the analysis.